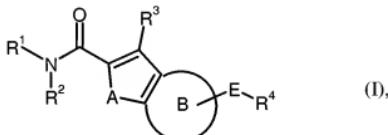


**AMENDMENT**

It is respectfully requested that the claims be amended without prejudice, as follows. The following listing of claims shall replace all prior claims.

**IN THE CLAIMS:**

1. (Currently Amended) A compound of formula (I):



in which

R<sup>1</sup> is 1-azabicyclo[2.2.2]oct-3-yl, which is optionally substituted via the nitrogen atom by a radical selected from the group of C<sub>1</sub>-C<sub>4</sub>-alkyl, benzyl and oxy,

R<sup>2</sup> is hydrogen or C<sub>1</sub>-C<sub>6</sub>-alkyl,

R<sup>3</sup> is hydrogen, halogen or C<sub>1</sub>-C<sub>6</sub>-alkyl,

R<sup>4</sup> is hydrogen, halogen, cyano, amino, trifluoromethyl, trifluoromethoxy, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkylcarbonyl, C<sub>1</sub>-C<sub>6</sub>-alkylamino, formyl, hydroxycarbonyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy, C<sub>1</sub>-C<sub>6</sub>-alkoxycarbonyl, C<sub>1</sub>-C<sub>6</sub>-alkylthio, C<sub>1</sub>-C<sub>6</sub>-alkylcarbonylamino, C<sub>1</sub>-C<sub>6</sub>-alkylaminocarbonyl, C<sub>1</sub>-C<sub>4</sub>-alkylsulphonylamino, C<sub>3</sub>-C<sub>8</sub>-cycloalkylcarbonyl-amino, C<sub>3</sub>-C<sub>6</sub>-cycloalkylaminocarbonyl, pyrrolyl, C<sub>1</sub>-C<sub>6</sub>-

alkylaminocarbonylamino, heteroeyelycarbonyl, heteroeyelycarbonylamino, heteroarylearbonylamino, hydroxyl, phenyl or heteroeyelyl morpholinyl, oxypiperidinyl, oxopyrrolidinyl, oxomorpholinyl, pyrrolidinyl, morpholinylcarbonyl, piperidinyl, pyridinyl, dihydropyrrolylcarbonyl, C<sub>1</sub>-C<sub>6</sub>-alkylpiperizinylcarbonyl, isoxazolecarbonylamino, tetrahydrofuranylcarbonylamino, furoylamino, piperidinylcarbonyl, or piperidinylcarbonyl,

where C<sub>1</sub>-C<sub>6</sub>-alkyl may optionally be substituted by hydroxyl, cyano, amino, C<sub>1</sub>-C<sub>6</sub>-alkylaminocarbonylamino, C<sub>1</sub>-C<sub>6</sub>-alkylaminocarboxyl, heteroeyelyl morpholinyl or aryl,

C<sub>1</sub>-C<sub>6</sub>-alkylaminocarbonyl may optionally be substituted by C<sub>1</sub>-C<sub>6</sub>-alkoxy or C<sub>1</sub>-C<sub>6</sub>-alkylamino, and

C<sub>1</sub>-C<sub>6</sub>-alkylcarbonylamino may optionally be substituted by C<sub>1</sub>-C<sub>6</sub>-alkoxy, and heteroeyelyl may optionally be substituted by exo,

A is oxygen or sulphur,

the ring B is benzo or pyrido, each of which are optionally substituted by radicals from the series halogen, cyano, formyl, trifluoromethyl, trifluoromethoxy, nitro, amino, C<sub>1</sub>-C<sub>6</sub>-alkyl and C<sub>1</sub>-C<sub>6</sub>-alkoxy,

and

E is C≡C, arylene and heteroarylene, where arylene and heteroarylene phenylene, thienylene, oxadizolylene, pyrrolylene, furanylene, pyrimidinylene, or pyridinylene wherein each ring system respectively may be substituted by radicals from the series halogen, cyano, trifluoromethyl, trifluoromethoxy, nitro, amino, C<sub>1</sub>-C<sub>6</sub>-alkoxy and C<sub>1</sub>-C<sub>6</sub>-alkyl,

or a solvate, a salt or a solvate of a salt thereof.

2. (Currently Amended) The compound of formula (I) of Claim 1, in which

R<sup>1</sup> is 1-azabicyclo[2.2.2]oct-3-yl,

R<sup>2</sup> is hydrogen or C<sub>1</sub>-C<sub>4</sub>-alkyl,

R<sup>3</sup> is hydrogen, fluorine, chlorine, bromine or C<sub>1</sub>-C<sub>4</sub>-alkyl,

R<sup>4</sup> is hydrogen, fluorine, chlorine, bromine, cyano, amino, trifluoromethyl, trifluoromethoxy, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-alkylcarbonyl, C<sub>1</sub>-C<sub>4</sub>-alkylamino, formyl, hydroxycarbonyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, C<sub>1</sub>-C<sub>4</sub>-alkoxycarbonyl, C<sub>1</sub>-C<sub>4</sub>-alkylthio, C<sub>1</sub>-C<sub>4</sub>-alkylcarbonylamino, C<sub>1</sub>-C<sub>4</sub>-alkylaminocarbonyl, C<sub>1</sub>-C<sub>4</sub>-alkylsulphonylamino, C<sub>3</sub>-C<sub>6</sub>-cycloalkylcarbonylamino, C<sub>3</sub>-C<sub>6</sub>-cycloalkylaminocarbonyl, pyrrolyl, C<sub>1</sub>-C<sub>4</sub>-alkylaminocarbonylamino, heterocyclic carbonyl, heterocyclic carbonylamino, heteroarylcarbonyl, hydroxyl, phenyl or heterocyclic—morpholinyl, oxypiperidinyl, oxopyrrolidinyl, oxomorpholinyl, pyrrolidinyl,

morpholinylcarbonyl, piperidinyl, pyridinyl, dihydropyrrolylcarbonyl, C<sub>1</sub>-C<sub>4</sub>-alkylpiperizinylcarbonyl, isoxazolecarbonylamino, tetrahydrofuranylcarbonylamino, furoylamino, piperidinylcarbonyl, or piperidinylcarbonyl,

where C<sub>1</sub>-C<sub>4</sub>-alkyl may optionally be substituted by hydroxyl, cyano, amino, C<sub>1</sub>-C<sub>4</sub>-alkylaminocarbonylamino, C<sub>1</sub>-C<sub>4</sub>-alkylaminocarboxyl, heterocyclyl morpholinyl or aryl,

C<sub>1</sub>-C<sub>4</sub>-alkylaminocarbonyl may optionally be substituted by C<sub>1</sub>-C<sub>4</sub>-alkoxy or C<sub>1</sub>-C<sub>4</sub>-alkylamino, and

C<sub>1</sub>-C<sub>4</sub>-alkylcarbonylamino may optionally be substituted by C<sub>1</sub>-C<sub>4</sub>-alkoxy, and heterocyclyl may optionally be substituted by oxo,

A is oxygen or sulphur,

the ring B is benzo or pyrido, each of which are optionally substituted by radicals from the series halogen, cyano, trifluoromethyl, trifluoromethoxy and C<sub>1</sub>-C<sub>4</sub>-alkyl,

and

E is C≡C, arylene and heteroarylene, where arylene and heteroarylene phenylene, thienylene, oxadizolylene, pyrrolylene, furanylene, pyrimidinylene, or pyridinylene wherein each ring system respectively may be substituted by radicals from the series halogen, cyano, trifluoromethyl, trifluoromethoxy, nitro, amino, C<sub>1</sub>-C<sub>4</sub>-alkoxy and C<sub>1</sub>-C<sub>4</sub>-alkyl,

or a solvate, a salt or a solvate of a salt thereof.

3. (Currently Amended) The compound of formula (I) of Claim 1, in which

R<sup>1</sup> is 1-azabicyclo[2.2.2]oct-3-yl,

R<sup>2</sup> and R<sup>3</sup> are hydrogen,

R<sup>4</sup> is hydrogen, fluorine, chlorine, bromine, cyano, amino, trifluoromethyl, trifluoromethoxy, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-alkylcarbonyl, C<sub>1</sub>-C<sub>4</sub>-alkylamino, formyl, hydroxycarbonyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, C<sub>1</sub>-C<sub>4</sub>-alkoxycarbonyl, C<sub>1</sub>-C<sub>6</sub>-alkylthio, C<sub>1</sub>-C<sub>4</sub>-alkylcarbonylamino, C<sub>1</sub>-C<sub>4</sub>-alkylaminocarbonyl, C<sub>1</sub>-C<sub>4</sub>-alkylsulphonylamino, C<sub>3</sub>-C<sub>6</sub>-cycloalkylcarbonylamino, C<sub>3</sub>-C<sub>6</sub>-cycloalkylaminocarbonyl, pyrrolyl, C<sub>1</sub>-C<sub>4</sub>-alkylaminocarbonylamino, heteroeycylecarbonyl, heteroeycylecarbonylamino, heteroarylecarbonyl, hydroxyl, phenyl or heteroeycyl-morpholinyl, oxypiperidinyl, oxopyrrolidinyl, oxomorpholinyl, pyrrolidinyl, morpholinylcarbonyl, piperidinyl, pyridinyl, dihydropyrrolylcarbonyl, C<sub>1</sub>-C<sub>4</sub>-alkylpiperizinylcarbonyl, isoxazolecarbonylamino,

tetrahydrofurylcarbonylamino, furoylamino, piperidinylcarbonyl, or piperidinylcarbonyl,

where C<sub>1</sub>-C<sub>4</sub>-alkyl may optionally be substituted by hydroxyl, cyano, amino, C<sub>1</sub>-C<sub>4</sub>-alkylaminocarbonylamino, C<sub>1</sub>-C<sub>4</sub>-alkylaminocarboxyl, ~~heteroeyethyl morpholinyl~~ or aryl,

C<sub>1</sub>-C<sub>4</sub>-alkylaminocarbonyl may optionally be substituted by C<sub>1</sub>-C<sub>4</sub>-alkoxy or C<sub>1</sub>-C<sub>4</sub>-alkylamino, and

C<sub>1</sub>-C<sub>4</sub>-alkylcarbonylamino may optionally be substituted by C<sub>1</sub>-C<sub>4</sub>-alkoxy, ~~and heteroeyethyl may optionally be substituted by oxo;~~

A is oxygen,

the ring B is benzo or pyrido, each of which are optionally substituted by radicals from the series halogen, cyano, trifluoromethyl, trifluoromethoxy and C<sub>1</sub>-C<sub>4</sub>-alkyl,

and

E is C≡C, arylene and heteroarylene, where arylene and heteroarylene phenylene, thienylene, oxadizolylene, pyrrolylene, furanylene, pyrimidinylene, or pyridinylene wherein each ring system respectively may be substituted by radicals from the series halogen, cyano, trifluoromethyl, trifluoromethoxy, nitro, amino, C<sub>1</sub>-C<sub>4</sub>-alkoxy and C<sub>1</sub>-C<sub>4</sub>-alkyl,  
or a solvate, a salt or a solvate of a salt thereof.

4. (Currently Amended) A compound of formula (I) of Claim 1, in which

R<sup>1</sup> is 1-azabicyclo[2.2.2]oct-3-yl,

R<sup>2</sup> is hydrogen or C<sub>1</sub>-C<sub>6</sub>-alkyl,

R<sup>3</sup> is hydrogen, halogen or C<sub>1</sub>-C<sub>6</sub>-alkyl,

R<sup>4</sup> is hydrogen, halogen, cyano, amino, trifluoromethyl, trifluoromethoxy, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkylcarbonyl, C<sub>1</sub>-C<sub>6</sub>-alkylamino, formyl, hydroxycarbonyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy, C<sub>1</sub>-C<sub>6</sub>-alkoxycarbonyl, C<sub>1</sub>-C<sub>6</sub>-alkylthio, C<sub>1</sub>-C<sub>6</sub>-alkylcarbonylamino, C<sub>1</sub>-C<sub>6</sub>-alkylsulphonylamino, C<sub>3</sub>-C<sub>8</sub>-cycloalkylcarbonylamino, pyrrolyl, C<sub>1</sub>-C<sub>6</sub>-alkylaminocarbonylamino, heterocyclic carbonyl, —phenyl or heterocyclic morpholinyl, oxypiperidinyl, oxopyrrolidinyl, oxomorpholinyl, pyrrolidinyl, morpholinylcarbonyl, piperidinyl, pyridinyl, dihydropyrrolylcarbonyl, C<sub>1</sub>-C<sub>4</sub>-alkylpiperizinylcarbonyl, isoxazolecarbonylamino, tetrahydrofuranylcarbonylamino, furoylamino, piperidinylcarbonyl, or piperidinylcarbonyl.

where C<sub>1</sub>-C<sub>6</sub>-alkyl may optionally be substituted by hydroxyl, amino, C<sub>1</sub>-C<sub>6</sub>-alkylaminocarbonylamino, C<sub>1</sub>-C<sub>6</sub>-alkylaminocarboxyl, heteroeyethyl morpholinyl or aryl, and

C<sub>1</sub>-C<sub>6</sub>-alkylcarbonylamino may optionally be substituted by C<sub>1</sub>-C<sub>6</sub>-alkoxy, and

heteroeyethyl may optionally be substituted by oxe,

A is oxygen or sulphur,

the ring B is benzo or pyrido, each of which are optionally substituted by radicals from the series halogen, cyano, formyl, trifluoromethyl, trifluoromethoxy, nitro, amino, C<sub>1</sub>-C<sub>6</sub>-alkyl and C<sub>1</sub>-C<sub>6</sub>-alkoxy,

and

E is C≡C, arylene and heteroarylene, where arylene and heteroarylene phenylene, thienylene, oxadizolylene, pyrrolylene, furanylene, pyrimidinylene, or pyridinylene wherein each ring system respectively is optionally substituted by

radicals from the series halogen, cyano, trifluoromethyl, trifluoromethoxy, nitro, amino, C<sub>1</sub>-C<sub>6</sub>-alkoxy and C<sub>1</sub>-C<sub>6</sub>-alkyl,

or a solvate, a salt or a solvate of a salt thereof.

5. (Currently Amended) The compound of formula (I) of Claim 1, in which

R<sup>1</sup> is 1-azabicyclo[2.2.2]oct-3-yl,

R<sup>2</sup> is hydrogen or C<sub>1</sub>-C<sub>6</sub>-alkyl,

R<sup>3</sup> is hydrogen, halogen or C<sub>1</sub>-C<sub>6</sub>-alkyl,

R<sup>4</sup> is hydrogen, halogen, cyano, trifluoromethyl, trifluoromethoxy, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy or heterocyclic morpholinyl, piperidinyl or pyrrolidinyl, where alkyl is optionally substituted by a hydroxyl radical,

A is oxygen or sulphur,

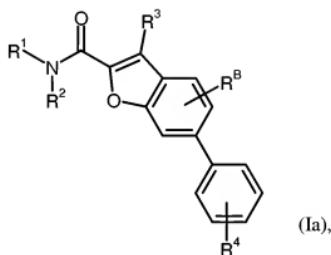
the ring B is benzo or pyrido, each of which are optionally substituted by radicals from the series halogen, cyano, trifluoromethyl, trifluoromethoxy, nitro, amino, C<sub>1</sub>-C<sub>6</sub>-alkyl and C<sub>1</sub>-C<sub>6</sub>-alkoxy,

and

E is C=C, arylene and heteroarylene, where arylene and heteroarylene phenylene, thienylene, oxadizolylene, pyrrolylene, furanylene, pyrimidinylene, or pyridinylene wherein each ring system respectively is optionally substituted by radicals from the series halogen, cyano, trifluoromethyl, trifluoromethoxy, nitro, amino, C<sub>1</sub>-C<sub>6</sub>-alkyl and C<sub>1</sub>-C<sub>6</sub>-alkoxy,

or a solvate, a salt or a solvate of a salt thereof.

6. (Currently Amended) The compound of claim 1 having the formula (Ia)



in which

R<sup>1</sup> is (3*R*)-1-azabicyclo[2.2.2]oct-3-yl,

R<sup>2</sup> and R<sup>3</sup> are, independently of one another, hydrogen or methyl,

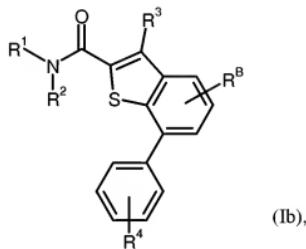
R<sup>4</sup> is hydrogen, halogen, cyano, trifluoromethyl, trifluoromethoxy, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy or ~~or heteroeyethyl~~ morpholinyl, piperidinyl or pyrrolidinyl, where alkyl is optionally substituted by a hydroxyl radical,

and

R<sup>B</sup> is hydrogen, halogen, cyano, trifluoromethyl, trifluoromethoxy, nitro, amino, C<sub>1</sub>-C<sub>6</sub>-alkyl or C<sub>1</sub>-C<sub>6</sub>-alkoxy,

or a solvate, a salt or a solvate of a salt thereof.

7. (Currently Amended) The compound of claim 1 having the formula (Ib)



in which

R<sup>1</sup> is (3*R*)-1-azabicyclo[2.2.2]oct-3-yl,

R<sup>2</sup> and R<sup>3</sup> are, independently of one another, hydrogen or methyl,

R<sup>4</sup> is hydrogen, halogen, cyano, trifluoromethyl, trifluoromethoxy, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy or heteroeyethyl morpholinyl, piperidinyl or pyrrolidinyl, where alkyl is optionally substituted by a hydroxyl radical, and

R<sup>B</sup> is hydrogen, halogen, cyano, trifluoromethyl, trifluoromethoxy, nitro, amino, C<sub>1</sub>-C<sub>6</sub>-alkyl and C<sub>1</sub>-C<sub>6</sub>-alkoxy,

or a solvate, a salt or a solvate of a salt thereof.

8. (Currently Amended) The compound of Claim 1, wherein

R<sup>1</sup> is (3*R*)-1-azabicyclo[2.2.2]oct-3-yl,

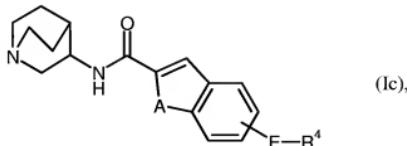
R<sup>2</sup> and R<sup>3</sup> are hydrogen,

R<sup>4</sup> is hydrogen, fluorine, chlorine, bromine, trifluoromethoxy, hydroxymethyl, methoxy or or heteroeyethyl morpholinyl or piperidinyl, and

R<sup>B</sup> is hydrogen, halogen, cyano, trifluoromethyl, trifluoromethoxy or C<sub>1</sub>-C<sub>4</sub>-alkyl,

or a solvate, a salt or a solvate of a salt thereof.

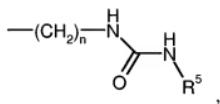
9. (Currently Amended) The compound of claim 1 having the formula (Ic)



in which

E is phenylene,

R<sup>4</sup> is C<sub>1</sub>-C<sub>6</sub>-alkoxy, aminomethyl, hydroxycarbonyl, C<sub>3</sub>-C<sub>8</sub>-cycloalkylcarbonylamino, a group of the formula



where

R<sup>5</sup> is C<sub>1</sub>-C<sub>6</sub>-alkyl,

n is zero, 1, 2, 3 or 4,

or

5-to-6 membered heterocyclic-morpholinyl, piperidinyl or pyrrolidinyl, which is optionally substituted by oxo,

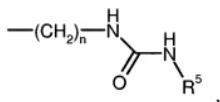
A is sulphur or oxygen,

or a solvate; a salt or a solvate of a salt thereof.

10. (Currently Amended) The compound of claim 9

E is phenylene,

R<sup>4</sup> is C<sub>1</sub>-C<sub>4</sub>-alkoxy, aminomethyl, hydroxycarbonyl, C<sub>3</sub>-C<sub>6</sub>-cycloalkylcarbonylamino, a group of the formula



where

R<sup>5</sup> is C<sub>1</sub>-C<sub>4</sub>-alkyl,

n is zero, 1 or 2,

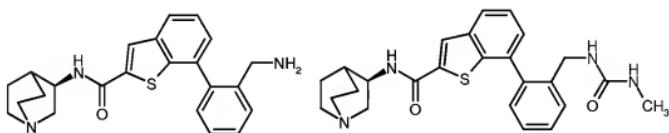
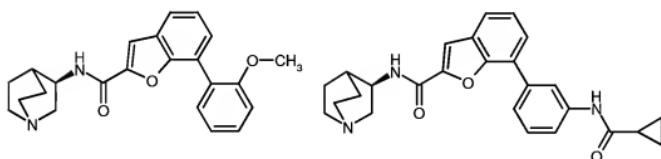
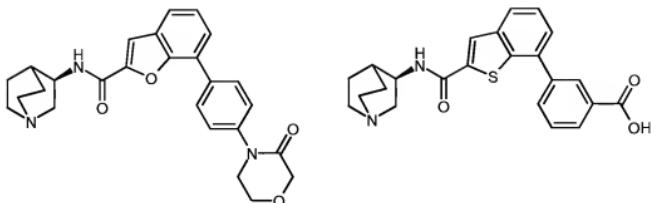
or

~~5-to 6 membered heterocyclic morpholinyl, piperidinyl or pyrrolidinyl, which is optionally substituted by oxo,~~

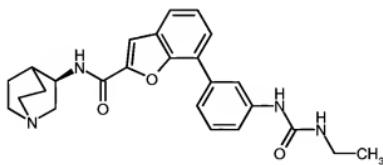
A is sulphur or oxygen,

~~or a solvate; a salt or a solvate of a salt thereof.~~

11. (Currently Amended) The compound of claim 1

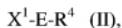


or



or a solvate, a salt or a solvate of a salt thereof.

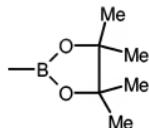
12. (Currently Amended) A process for the preparation of a compound of formula (I) of  
Claim 1, in which a compound of formula (II)



in which

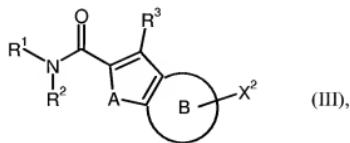
$R^4$  has the meanings indicated in Claim 1, and

$X^1$  is  $-B(OH)_2$  or



in the case where E is arylene or heteroarylene, and is hydrogen in the case where  
E is  $-C\equiv C-$ ,

is reacted with a compound of the formula (III)



in which

$R^1$ ,  $R^2$ ,  $R^3$ , A and the ring B have the meanings indicated in Claim 1, and

$X^2$  is triflate or halogen, preferably chlorine, bromine or iodine,

and where appropriate

[A] the resulting compound of formula (I) is alkylated on the quinuclidine nitrogen atom with an appropriate alkylating reagent, or

[B] the resulting compound of formula (I) is oxidized on the quinuclidine nitrogen atom with a suitable oxidizing agent,

and the resulting compound of formula (I) is optionally converted to or ~~a solvate~~; a salt ~~or a solvate of a salt~~ with an appropriate (i) solvent and/or (ii) base or acid.

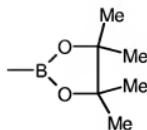
13. (Currently Amended) A process for the preparation of a compound of the formula (I) of Claim 1, in which a compound of formula (II)



in which

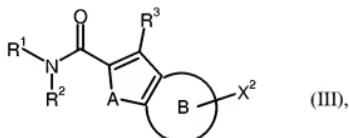
$R^4$  has the meanings indicated in Claim 1, and

$X^1$  is  $-B(OH)_2$  or



in the case where E is arylene or heteroarylene, and is hydrogen in the case where E is -C≡C-,

is reacted with a compound of the formula (III)



in which

R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, A and the ring B have the meanings indicated in Claim 1, and

X<sup>2</sup> is triflate or halogen, preferably chlorine, bromine or iodine,

and the resulting compound of formula (I) is optionally converted to or a solvate, a salt or a solvate of a salt with an appropriate (i) solvent and/or (ii) base or acid.

14. (Cancelled)

15. (Previously Presented) A pharmaceutical composition comprising at least one compound according to any of Claims 1 to 11 and at least one pharmaceutically acceptable, essentially nontoxic carrier or excipient.
16. (Canceled)
17. (Canceled)
18. (Canceled)
19. (Previously Presented) A method for the treatment or prophylaxis of impairments of perception, concentration, learning and/or memory comprising administering to a human or animal at least one compound according to any of Claims 1 to 11.